



## GOVERNMENT INTERESTS

The U. S. Government has rights in this invention pursuant to Contract No. DE-AC09-96SR18500 between the U. S. Department of Energy and Westinghouse Savannah River Company.

## FIELD AND HISTORICAL BACKGROUND OF THE INVENTION

This invention was made with Government support under a contract awarded by the U.S. Department of Energy. The Government has certain rights in the invention.

The present invention is directed to the deployment of submersible mixers in a tank, and more particularly to a self-anchoring mast for deploying a high-speed submersible mixer in high-level waste (or other industry) tanks to allow the contents to be agitated for processing or transfer.

Installation of submersible mixing or agitation equipment in tanks usually requires internal attachment and/or support structures, within the tank, to affix the mixer to the tank wall or floor. This is particularly true when high-energy machines, such as the 50 HP Flygt mixer are installed, in order to safely anchor the unit, to remain stable under the machine's 1,600 pounds of reaction thrust from a high speed (860 RPM) propeller. If the tank is not originally built with the necessary anchoring systems, personnel must enter the tank to install the anchoring systems. Otherwise, high energy mixers cannot be considered without some other (external) support structure. In hazardous industrial tank applications, such as chemical, volatile or radioactive tanks, this factor alone often precludes high energy mixer installation or requires extensive external support systems.

Further, it is often found that deployment of smaller scale agitation equipment is attempted in a tank with the use of cumbersome and expensive tank top superstructures to support the agitator and to provide reaction capability for the mixer's thrust. In case of